



Pittsburgh Geological Society Speaker information for newsletter

Speaker name: Martin F. Helmke, PhD, PG

Speaker title or position held: Professor of Hydrogeology and PCPG President Elect

University or affiliation: West Chester University of Pennsylvania

Title of presentation: Drones: Providing New Perspectives for Geologic Research and Investigations

In the space below please provide a brief (~250-500 word) bio for PGS to use in the monthly newsletter.

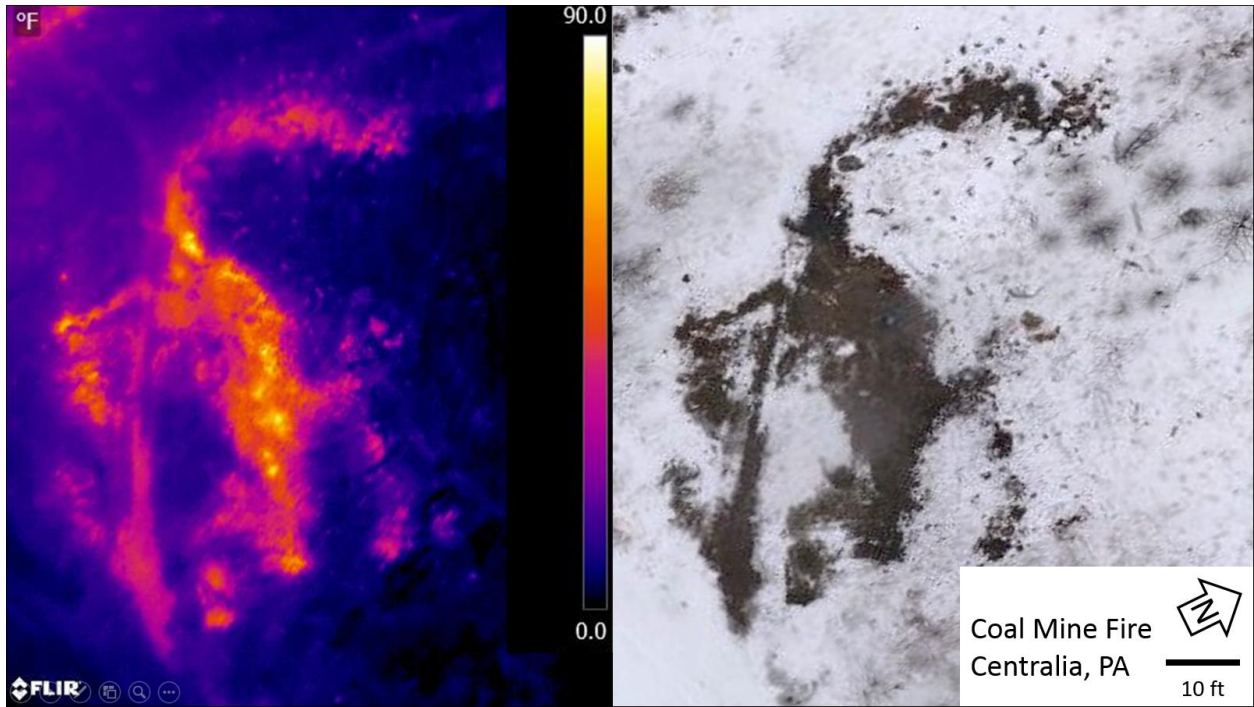
Bio: Dr. Helmke is Full Professor of Hydrogeology in the Department of Earth and Space Sciences at West Chester University of Pennsylvania, President Elect of the Pennsylvania Council of Professional Geologists, and President of Helmke Hydrogeologic, LLC. Dr. Helmke holds a PhD in Geology and Water Resources from Iowa State University and has 21 years experience applying fixed-wing and multi-rotor UAVs for geologic research. He is an FAA-licensed drone pilot dedicated to promoting the use of drones for geologic and environmental investigations.

In the space below please provide a brief (~250-500 word) abstract for PGS to use in the monthly newsletter.

Abstract: Unoccupied Aerial Systems (UAS, or drones) have rapidly become popular and powerful research tools for geologists. In addition to providing an aerial view of a project site, drone imagery and 3-dimensional photogrammetry can be used to document site environmental conditions, evaluate structural geology, conduct fracture trace analysis, monitor sinkholes and subsidence, evaluate coal mine fires, record mass movement, delineate wetlands, and document paleontological specimens among other applications. Drones equipped with scientific instruments such as telephoto lenses, thermal cameras, multispectral imagers, geophysical devices, and chemical sensors are capable of recording precise scientific measurements in locations inaccessible by traditional methods. The objective of this presentation is to review geologic case studies across the US that have benefitted from drone technology and help geologists become more familiar with drone capabilities, legal limitations, best practices, and business models before taking to the sky.

In addition, please attach a photo of yourself and an illustration related to your research project (map, cross-section, field photo, etc). You can insert the graphics in this document, include them as attachments to your email along with this document, or send us a link to the website where they can be found.





Thank you!